



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/749,782	12/28/2000	Sang Won Kang	EM/KANG/6351	6245

7590 07/13/2005
BACON & THOMAS, PLLC
4th Floor
625 Slaters Lane
Alexandria, VA 22314-1176

EXAMINER

STORM, DONALD L

ART UNIT	PAPER NUMBER
----------	--------------

2654

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/749,782

Applicant(s)

KANG ET AL.

Examiner

Donald L. Storm

Art Unit

2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Specification

2. The disclosure is objected to because of potentially confusing informalities. See 37 CFR 1.71 and MPEP 608.01. Appropriate correction is required.

a. The specification is objected to using the same rational as in the prior Office action because the term "LSP counts" still appears in the amendment to page 4, line 11 to page 5, line 3.

b. In the amendment to page 5, lines 6-14, in the mathematical expression of [Equation 2], the second occurrence of "{" (close braces) should probably be ")" (close parentheses).

3. The Examiner notes, without objection, the possibility of informalities in the specification. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. The Applicant's cooperation is requested to consider correcting minor errors of which the Applicant may become aware during normal review and revision of the disclosure.

In the amendment to page 19, lines 5-9, did the Applicant intend track 1 to be referenced as (t_0) ? Then what are tracks for the symbols t_1 and t_2 elsewhere in the specification and amendments?

Claim Informalities

4. Claims 2-4 are objected to as being (directly or indirectly) dependent upon a rejected base claim. See MPEP § 608.01(n)V. The claim(s) would be allowable over the prior art of record if rewritten to include all of the limitations of the base claim and any intervening claims. The claims should also be rewritten to overcome any objections or rejections under 35 U.S.C. 112(2), especially as appearing in this Office action. Certain assumptions that make the limitations clear have been considered for the claims, as described next or elsewhere in this Office action.

5. Claims 3, 5, and by dependency claims 4 and 6-8 are objected to under 37 CFR 1.75(a) because of the following potentially confusing informalities.

a. The meaning of the phrase “the detecting and searching processes” (claim 5) needs clarification. Because no detecting and searching processes were previously recited, it may be unclear as to what element this phrase refers. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase to refer to --detecting and searching processes--. The phrase “the searching process” appears in claim 8.

b. The meaning of the phrase “the code vector-obtaining step” (claim 3, lines 1-2) needs clarification. Because no step for obtaining was previously recited, it may be unclear as to what element this phrase refers. Obtaining a code vector (an optimal one) was apparently recited as a statement of use of the determining step, not as an explicit step of the method. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase to be --obtaining a code vector--.

c. The symbols “p”, “p_m”, “L_m”, “M”, and “W” (claim 3) should be defined in the claims at least the first time used, if a concise and accurate definition is available. No new matter

may be introduced into the disclosure as filed. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase to refer to the Equation 2 found in the specification.

6. The Examiner notes, without objection, the possibility of informalities in the claims. The Applicant may wish to consider changes during normal review and revision of the disclosure.

In claim 5, last line, should the phrase be --detecting and searching processes for indexes--?

Claim Rejections - 35 USC § 102

Aldersberg

7. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Aldersberg [US Patent 4,907,276], already of record.

8. Regarding claim 1, Aldersberg [at abstract] describes the high-speed method by describing the content and functionality of the recited limitations recognizable as a whole to one versed in the art as the following terminology:

a new codebook with code vectors arranged in order according to an element value of a reference row [at column 2, lines 57-58, as re-ordering said codebook code vectors according to their value on the p axis];

rearranging the codebook by replacing [rearranging an existing codebook to a new arrangement inherently replaces the original codebook; see column 12, lines 9-12, where Aldersburg describes offline reorganization of a codebook, followed by online use of the codebook that results (the reorganized codebook)];

rearranging for determining a range of code vectors to be searched and determining a search range [at column 3, lines 7-13, as determining a codebook range having code vectors for performing a search over the range];

an order character between a target vector and a code vector [at column 3, lines 1-3, as a distance value between a transform domain vector and a surface vector];

the target vector was given [at column 2, lines 64-65, as the transform domain vector provided by transforming the input vector];

the code vector was arranged [at column 2, lines 54 and 67-68, as the surface vector is on the p axis];

determining the search range by using the order character to obtain an optimal code vector [at column 3, lines 7-13, as determining a codebook range having radius defined by the distance value to select the one, nearest code vector].

Yoon

9. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Yoon et al. [US Patent 6,622,120], already of record.

10. Regarding claim 1, Yoon [at claims, 1, 2, and 8] describes a high-speed search method for LSP quantization with the content and functionality of the recited limitations recognizable as a whole to one versed in the art as the following terminology:

a new codebook with code vectors arranged in order according to an element value of a reference row [at claim 1, second and third steps, as a generated and sorted code book having an ordering property in order with respect to values of a line]

rearranging the codebook by replacing [*Exmr: rearranging an existing codebook to a new arrangement inherently replaces the original codebook*];

rearranging for determining a range of code vectors to be searched and determining a search range by using an order character between a target vector and a code vector [at claim 1, third and fourth steps, as determining a search scope in the code book using an ordering property of the target vector and the sorted code vectors; *Exmr: note that using the sorted code vectors inherently uses the property that created the order of the sort results*];

the target vector was given [at claim 1, first step, as the target vector was obtained];

the code vector was arranged [at claim 1, as the code vector was converted for ordering property].

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Yoon

12. Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-13 of U.S. Patent No. 6,622,120 of Yoon et al., already of record. Although the conflicting claims are not identical, they are not patentably distinct from each other because a person of ordinary skill in the art would conclude that the invention defined in the claims in issue is an obvious variation of the invention defined in the claims in the patent having inventors who are also applicants of the instant application.

13. Claim 1 of this application is not patentably distinct from claims 1-13 of Yoon because Yoon's claim limitations are set forth including obviously similar phrases that describe the content and functionality of the recited limitations recognizable as a whole to one versed in the art; this is shown in detail in the rejection under 35 U.S.C. 102(e) as being anticipated by Yoon et al. [US Patent 6,622,120], elsewhere in this Office action.

However, claim 1 of this application does not explicitly include Yoon's claimed second step, first substep, second sub-step, and third sub-step.

It would have been obvious to one of ordinary skill in the art of computerized speech encoding at the time that the invention was made that claim limitations in Yoon's claim differ

from those in the application only by functions that can be eliminated if the effect of the additional functions is unneeded or undesired. If the functionality provided by the additional limitations were not desired, it would have been obvious to eliminate it, and so achieve the advantage of simplifying the processing.

Similarly, it would have been obvious that the additional limitations provided by the dependent claims of Yoon should not be included if their added functions are not desired because their elimination would further simplify processing.

Lee

14. Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 4, 5, 9, and 10 of U.S. Patent No. 6,836,225 of Lee et al. Although the conflicting claims are not identical, they are not patentably distinct from each other because a person of ordinary skill in the art would conclude that the invention defined in the claims in issue is an obvious variation of the invention defined in the claims in the patent having an inventor who is also an applicant of the instant application.

15. Claim 1 of this application is not patentably distinct from claims 4, 5, 9, and 10 of Lee because Lee's claim limitations are set forth including obviously similar phrases that describe the content and functionality of the recited limitations recognizable as a whole to one versed in the art, as follows:

a new codebook with code vectors arranged in order according to an element value of a reference row [at claims 4 and 5 (rearranging step) and at claims 9 and 10 (instructions for

rearranging), as a codebook with rearranged codewords in an order of a size of element values corresponding to a particular position];

rearranging the codebook by replacing [*Exmr: rearranging an existing codebook to a new arrangement inherently replaces the original codebook*];

rearranging for determining a range of code vectors to be searched and determining a search range [at claims 4 and 5 (determining and designating steps) and at claims 9 and 10 (instructions for determining and designating), as determining as a start point in the rearranged codewords, determining as an end point in the rearranged codewords, and designating codewords between the start point and the end point as search codewords];

an order character between a target vector and a code vector [at claim 1 (calculating and designating steps) and at claim 6 (instructions for calculating and designating), as subtraction/addition results from/to a value of an input vector, which bound element values of codewords];

determining the search range by using the order character [at claim 1 (calculating and designating steps) and at claim 6 (instructions for calculating and designating), as designating search object codewords as those with element values between boundaries determined by subtraction/addition results as from/to a value of an input vector];

the target vector was given [at claim 1 (calculating step) and at claim 6 (instructions for calculating), as input vector];

the code vector was arranged [at claims 4 and 5 (rearranging step) and at claims 9 and 10 (instructions for rearranging), as rearranged codewords];

to obtain an optimal code vector [at claim 1 (determining step) and at claim 6 (instructions for determining), as determine optimum codewords].

However, claim 1 of this application does not explicitly include Lee's calculation of a quantization error, explicit comparison of element values to boundary values, descending order, ascending order, size, computer-readable medium, and instructions.

It would have been obvious to one of ordinary skill in the art of speech encoding at the time that the invention was made that claim limitations in Lee's claim differ from those in the application only by functions and means that can be eliminated if the effect of the additional functions and means is unneeded or undesired. If the functionality provided by the additional limitations were not desired, it would have been obvious to eliminate it, and so achieve the advantage of simplifying the processing.

Response to Arguments

16. The prior Office action, mailed November 17, 2004, objects to the specification and claims, and rejects claims under 35 USC § 102 and under the doctrine of obviousness-type double patenting. The Applicant's arguments and changes in AMENDMENT AND RESPONSE, filed March 10, 2005, have been fully considered with the following results.

17. With respect to objection to the disclosure's informalities, the changes entered by amendment provide clearer descriptions of the subject matter. Accordingly, the objections are removed. Please see new grounds of objection.

However, the Applicant may wish to consider changing the symbol (lower-case) "t", meaning transpose, to the symbol "T", which apparently has the same meaning. See the prior Office action at numbered section 1m.

18. With respect to objection to the claims as dependent upon a rejected base claim, some claims are dependent upon rejected base claims. Those objections that remain are repeated elsewhere in this Office action. The objections to claims other than those objected to above are removed.

19. With respect to objection to those claims having informalities, the changes entered by amendment provide clearer descriptions of some of the claimed subject matter. Those objections that remain are repeated elsewhere in this Office action. The objections to claims not objected above are removed. Please see new grounds of objection.

20. With respect to rejection of claims under 35 USC § 102, citing Aldersburg, the Applicant's arguments appear to be as follows:

a. The Applicant's argument appears to be that some (unspecified) part of determining the search range to obtain an optimal code vector means that the search range is determined by optimizing a code vector. This argument is not persuasive because the claim does not recite optimizing a code vector, and the claim does not recite an order property. The optimal code vector and a related order character are discussed in the specification at page 4, lines 18-20. Neither those lines nor any part of the disclosure as filed supports the interpretation of claim language on which the Applicant's argument relies. Nothing in the disclosure as filed supports a step of optimizing a code vector.

b. The Applicant's argument appears to be that Aldersburg's distance measure is not an order property for Aldersburg's code vectors in the subgroup. This argument is not persuasive because Aldersburg's distance measure [see column 3, lines 40-44] describes the relation of

eigenvalues relative to each other, and their relative measure is described geometrically by p-value on the p axis. The search range is limited to a range of p-values.

The Applicant's arguments have been fully considered but they are not persuasive. Accordingly, the rejection is maintained.

21. With respect to rejection of claims under *35 USC § 102*, citing Nakano, and in view of the Examiner's clearer understanding of the claim's limitations due to amended explanations of the specification and due to the Applicant's assertions, it appears that Nakano's codebook vectors are not the tracks of the claim. The reference Nakano does not explicitly describe that limitation. The whole structure and interaction expressed by the combination of all limitations is not made obvious compared to the prior art of record for the whole invention of the claim that determines a range to search a track according to indexes arranged in order, particularly with canceling detecting and searching due to a low probability. Accordingly, the rejection is removed. The Applicant's assertions with respect to the reference have been considered, but they are moot in view of the new claim element.

22. With respect to rejection of claim 1 under *35 USC § 102*, citing Yoon, the Applicant's arguments appear to be as follows:

a. The Applicant's argument appears to be that some (unspecified) part of determining the search range to obtain an optimal code vector means that the search range is determined by optimizing a code vector, but Yoon optimizes (minimizes) an error, thereby reversing the role of optimizing. This argument is not persuasive because the claim does not recite optimizing a code vector, and the claim does not recite an order property. The optimal code vector and a related

order character are discussed in the specification at page 4, lines 18-20. Neither those lines nor any part of the disclosure as filed supports the interpretation of claim language on which the Applicant's argument relies. Nothing in the disclosure as filed supports a step of optimizing a code vector.

b. The Applicant's argument appears to be that Yoon's error standard is not an order property for Yoon's line and codebook. This argument is not persuasive because Yoon's error standard describes a relation between a target vector and a code vector, which is all that is required in the claim of the order character. The error standard that is utilized is limited to a search range.

The Applicant's arguments have been fully considered but they are not persuasive. Accordingly, the rejection is maintained.

23. With respect to rejection of claim 3 under 35 USC § 102, citing Yoon, the changes entered by amendment include the equation that is not explicitly described in Yoon. Accordingly, the rejection is removed. The Applicant's assertions with respect to Yoon have been considered, but they are moot in view of the new claim element.

24. With respect to rejection of claim 1 under the judicially created doctrine of obviousness-type double patenting, the Applicant's arguments appear to be that double patenting cannot exist if some inventors of the patent's invention are not applicants of an application that claims an obvious variation of the patented invention. This argument is not persuasive because double patenting may exist between an issued patent and an application filed by the same inventive entity, or by an inventive entity having a common inventor with the patent, and/or by the owner of the patent. See MPEP § 804(1.A.). Accordingly, the rejection is maintained. See also new grounds of rejection.

25. With respect to rejection of claim 3 under the judicially created doctrine of obviousness-type double patenting, the changes entered by amendment include the equation that is not explicitly claimed by Yoon. Accordingly, the rejection is removed. The Applicant's assertions with respect to Yoon have been considered, but they are moot in view of the new claim element.

Conclusion

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

It is incumbent upon each Applicant and who is associated with the assignee to disclose on his or her own initiative information material to the examination of this application. Had the Applicant disclosed the Lee reference that is deemed material to the examination of the instant application, the rejections in view of Lee could have been made before now. The proper conclusion on the patentability of the claimed subject matter could have been made before now. The Applicants had almost 14 months between the Lee application's filing date and the mail date of the first action on the merits and almost four months between that mailing and the response to the first action. Had the other application by the Applicant been disclosed to the Examiner anytime between its filing and the first action on the merits, the issues resulting from the conflicting claims would have been raised in the first Office action. Accordingly, this action is made final.

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

27. Any response to this action should be mailed to:

Mail Stop AF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306, (for formal communications; please mark "EXPEDITED PROCEDURE" and for informal or draft communications, additionally mark "PROPOSED" or "DRAFT")

On and After July 15, 2005, fax to:

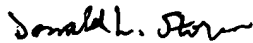
(571) 273-8300.

Patent Correspondence delivered by hand or delivery services, other than the USPS, should be addressed as follows and brought to U.S. Patent and Trademark Office, Customer Service Window, **Mail Stop AF**, Randolph Building, 401 Dulany Street, Alexandria, VA 22314

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L. Storm, of Art Unit 2654, whose telephone number is (703) 305-3941. The examiner can normally be reached on weekdays between 8:00 AM and 4:30

PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (703) 305-9645.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Inquiries regarding the status of submissions relating to an application or questions on the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028 between the hours of 6 a.m. and midnight Monday through Friday EST, or by e-mail at: ebc@uspto.gov. For general information about the PAIR system, see <http://pair-direct.uspto.gov>.


Donald L. Storm
July 11, 2005


RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER